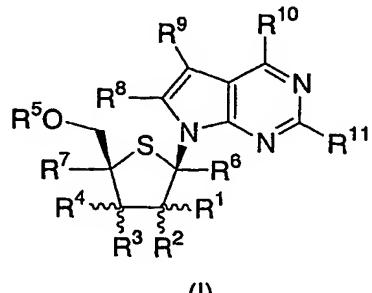


**WHAT IS CLAIMED IS:**

1. A compound of the structural formula I:

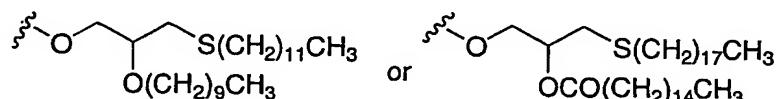


5 or a pharmaceutically acceptable salt thereof;  
wherein R<sup>1</sup> is C<sub>1-4</sub> alkyl, wherein alkyl is unsubstituted or substituted with hydroxy, amino, C<sub>1-4</sub> alkoxy, C<sub>1-4</sub> alkylthio, or one to three fluorine atoms;  
R<sup>2</sup> is amino, fluorine, hydroxy, mercapto, C<sub>1-4</sub> alkoxy, or C<sub>1-10</sub> alkylcarbonyloxy;  
R<sup>3</sup> and R<sup>4</sup> are each independently selected from the group consisting of hydrogen, cyano, azido, halogen, hydroxy, mercapto, amino, C<sub>1-4</sub> alkoxy, C<sub>1-10</sub> alkylcarbonyloxy, C<sub>2-4</sub> alkenyl, C<sub>2-4</sub> alkynyl, and C<sub>1-4</sub> alkyl, wherein alkyl is unsubstituted or substituted with hydroxy, amino, C<sub>1-4</sub> alkoxy, C<sub>1-4</sub> alkylthio, or one to three fluorine atoms;  
R<sup>5</sup> is hydrogen, C<sub>1-10</sub> alkylcarbonyl, P<sub>3</sub>O<sub>9</sub>H<sub>4</sub>, P<sub>2</sub>O<sub>6</sub>H<sub>3</sub>, or P(O)R<sub>13</sub>R<sub>14</sub>;  
10 R<sup>6</sup> and R<sup>7</sup> are each independently hydrogen, methyl, hydroxymethyl, or fluoromethyl; R<sup>8</sup> is hydrogen, C<sub>1-4</sub> alkyl, C<sub>2-4</sub> alkynyl, halogen, cyano, carboxy, C<sub>1-4</sub> alkyloxycarbonyl, azido, amino, C<sub>1-4</sub> alkylamino, di(C<sub>1-4</sub> alkyl)amino, hydroxy, C<sub>1-6</sub> alkoxy, C<sub>1-6</sub> alkylthio, C<sub>1-6</sub> alkylsulfonyl, or (C<sub>1-4</sub> alkyl)O-2 aminomethyl;  
15 R<sup>9</sup> is hydrogen, cyano, nitro, C<sub>1-3</sub> alkyl, NHCONH<sub>2</sub>, CONR<sub>12</sub>R<sub>12</sub>, CSNR<sub>12</sub>R<sub>12</sub>, COOR<sub>12</sub>, C(=NH)NH<sub>2</sub>, hydroxy, C<sub>1-3</sub> alkoxy, amino, C<sub>1-4</sub> alkylamino, di(C<sub>1-4</sub> alkyl)amino, halogen, (1,3-oxazol-2-yl), (1,3-thiazol-2-yl), or (imidazol-2-yl); wherein alkyl is unsubstituted or substituted with one to three groups independently selected from halogen, amino, hydroxy, carboxy, and C<sub>1-3</sub> alkoxy;  
20 R<sup>10</sup> and R<sup>11</sup> are each independently hydrogen, hydroxy, halogen, C<sub>1-4</sub> alkoxy, amino, C<sub>1-4</sub> alkylamino, di(C<sub>1-4</sub> alkyl)amino, C<sub>3-6</sub> cycloalkylamino, di(C<sub>3-6</sub>

cycloalkyl)amino, or C<sub>4</sub>-6 cycloheteroalkyl, unsubstituted or substituted with one to two groups independently selected from halogen, hydroxy, amino, C<sub>1</sub>-4 alkyl, and C<sub>1</sub>-4 alkoxy;

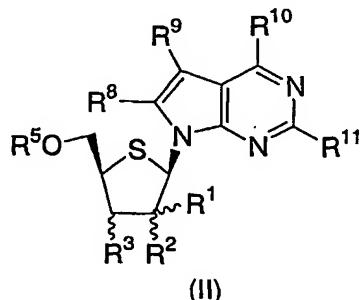
each R<sup>12</sup> is independently hydrogen or C<sub>1</sub>-6 alkyl; and

5 R<sup>13</sup> and R<sup>14</sup> are each independently hydroxy, OCH<sub>2</sub>CH<sub>2</sub>SC(=O)C<sub>1</sub>-4 alkyl, OCH<sub>2</sub>O(C=O)OC<sub>1</sub>-4 alkyl, NHCHMeCO<sub>2</sub>Me, OCH(C<sub>1</sub>-4 alkyl)O(C=O)C<sub>1</sub>-4 alkyl,



2. The compound of Claim 1 of the structural formula II:

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or a pharmaceutically acceptable salt thereof;

wherein

15 R<sup>1</sup> is C<sub>1</sub>-3 alkyl, wherein alkyl is unsubstituted or substituted with hydroxy, amino, C<sub>1</sub>-3 alkoxy, C<sub>1</sub>-3 alkylthio, or one to three fluorine atoms;

R<sup>2</sup> is hydroxy, fluoro, C<sub>1</sub>-3 alkoxy, or C<sub>1</sub>-8 alkylcarbonyloxy;

R<sup>3</sup> is hydrogen, halogen, hydroxy, amino, C<sub>1</sub>-3 alkoxy, or C<sub>1</sub>-8 alkylcarbonyloxy;

R<sup>5</sup> is hydrogen, C<sub>1</sub>-8 alkylcarbonyl, P<sub>3</sub>O<sub>9</sub>H<sub>4</sub>, P<sub>2</sub>O<sub>6</sub>H<sub>3</sub>, or PO<sub>3</sub>H<sub>2</sub>;

R<sup>8</sup> is hydrogen, amino, or C<sub>1</sub>-4 alkylamino;

20 R<sup>9</sup> is hydrogen, cyano, methyl, halogen, or CONH<sub>2</sub>; and

R<sup>10</sup> and R<sup>11</sup> are each independently hydrogen, halogen, hydroxy, amino, C<sub>1</sub>-4 alkylamino, di(C<sub>1</sub>-4 alkyl)amino, or C<sub>3</sub>-6 cycloalkylamino.

## 3. The compound of Claim 2 wherein

R<sup>1</sup> is methyl, fluoromethyl, hydroxymethyl, difluoromethyl, trifluoromethyl, or aminomethyl;

R<sup>2</sup> is hydroxy, fluoro, or methoxy;

5 R<sup>3</sup> is hydrogen, fluoro, hydroxy, amino, or methoxy;  
R<sup>5</sup> is hydrogen or P<sub>3</sub>O<sub>9</sub>H<sub>4</sub>;

R<sup>8</sup> is hydrogen or amino;

R<sup>9</sup> is hydrogen, cyano, methyl, halogen, or CONH<sub>2</sub>; and

R<sup>10</sup> and R<sup>11</sup> are each independently hydrogen, fluoro, hydroxy, or amino.

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## 4. The compound of Claim 3 which is

4-amino-7-(2-C-methyl-4-thio- $\beta$ -D-ribofuranosyl)-7*H*-pyrrolo[2,3-*d*]pyrimidine or  
2-amino-7-(2-C-methyl-4-thio- $\beta$ -D-ribofuranosyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-  
4(3*H*)-one;

15 and the corresponding 5'-triphosphates;  
or a pharmaceutically acceptable salt thereof.

5. A pharmaceutical composition comprising a compound of  
Claim 1 and a pharmaceutically acceptable carrier.

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6. The pharmaceutical composition of Claim 5 useful for  
inhibiting RNA-dependent RNA viral polymerase, inhibiting RNA-dependent RNA  
replication, and/or treating RNA-dependent RNA viral infection.

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7. The pharmaceutical composition of Claim 6 wherein said  
RNA-dependent RNA viral polymerase is HCV NS5B polymerase, said RNA-  
dependent RNA viral replication is HCV replication, and said RNA-dependent RNA  
viral infection is HCV infection.

30

8. A method of inhibiting RNA-dependent RNA viral polymerase  
and/or inhibiting RNA-dependent RNA viral replication comprising administering to  
a mammal in need of such inhibition an effective amount of a compound according to  
Claim 1.

9. The method of Claim 8 wherein said RNA-dependent RNA viral polymerase is HCV NS5B polymerase and said RNA-dependent RNA viral replication is HCV viral replication.

5 10. A method of treating RNA-dependent RNA viral infection comprising administering to a mammal in need of such treatment an effective amount of a compound according to Claim 1.

11 10. The method of Claim 10 wherein said RNA-dependent RNA viral infection is HCV infection.

12. The method of Claim 11 in combination with a therapeutically effective amount of another agent active against HCV.

15 13. The method of Claim 12 wherein said agent active against HCV is ribavirin; levovirin; thymosin alpha-1; interferon- $\beta$ ; an inhibitor of NS3 serine protease; an inhibitor of inosine monophosphate dehydrogenase; interferon- $\alpha$  or pegylated interferon- $\alpha$ , alone or in combination with ribavirin or levovirin.

20 14. The method of Claim 13 wherein said agent active against HCV is interferon- $\alpha$  or pegylated interferon- $\alpha$ , alone or in combination with ribavirin.

25 15. Use of a compound of Claim 1 for the inhibition of RNA-dependent RNA viral polymerase or inhibition of RNA-dependent RNA viral replication in a mammal.

16. Use of a compound of Claim 1 for treatment of RNA-dependent RNA viral infection in a mammal.

30 17. The use of Claim 16 wherein said RNA-dependent RNA viral infection is hepatitis C infection.

35 18. Use of a compound of Claim 1 in the manufacture of a medicament for the inhibition of RNA-dependent RNA viral polymerase or the inhibition of RNA-dependent RNA viral replication in a mammal.

19. Use of a compound of Claim 1 in the manufacture of a medicament for treatment of RNA-dependent RNA viral infection in a mammal.

20. The use of Claim 19 wherein said RNA-dependent RNA viral infection is hepatitis C infection.